

A Deadly Game of Russian Roulette

Five in the Chamber; One to go

A presentation by Gary Esslinger, Elephant Butte Irrigation District



Six Bullets for the Gun:



110 mile River reach in Need of Maintenance



Flood Control Dams in Need of Rehab



Privately Owned Dams in Need of Repair



Wild Arroyos without Flood Control



Canal and Drainage System Inadequate for
Dual Purpose



Unrestricted Growth, Lack of Adequate
Funding and Authority and Jurisdiction



The First Bullet Unhealthy River

- Silted river bottom
- Narrowed channel
- Uncertified levees
- Over bank flooding
- Unpredicted water gains and losses to Downstream users



The First Bullet Unhealthy River



The First Bullet Narrowed Channel





The First Bullet Uncertified Levees





The First Bullet Over Bank Flooding





The Second Bullet

PL 566 Flood Control Dams

- 50 year old structures designed for 50 year flood events in need of rehab
- Fed assistance limited: 65/35 match for \$Mil+ rehabs
- 5 IBWC sponsored structures with direct flow to the river
- 21 EBID sponsored structures with direct flow into Canals and Drains
- 27 DACFC sponsored structures that flow into farm land or EBID facilities
- Inadequate funding and resources
- Limited Authority and Jurisdiction



The Second Bullet Flood Control Dams





The Second Bullet Flood Control Dams





The Third Bullet

Private Dams

- 25 to 50 Dams often not designed to standards but constructed to protect private farms
- 75+ dikes and berms improperly constructed to divert arroyo flows
- Farm land now subdivided below such structures
- Inadequate funding and resources
- Lack of Authority and Jurisdiction



The Third Bullet Private Dams



The Third Bullet Private Dams





The Fourth Bullet

Wild Arroyos



- Uncontrolled flood flows (2000 to 7000 cubic feet sec. average)
- Major Silt depositor to river
- Debris and trash contributor
- Unknown water quality contributor
- Major arroyos located near populated areas and major diversion structures
- Inadequate funding/resources
- Lack of Authority and Jurisdiction

The Fourth Bullet Wild Arroyos



The Fourth Bullet Wild Arroyos



The Fourth Bullet Wild Arroyos





The Fifth Bullet



Dual Purpose Inadequacies

- Canal/Drainage at capacity during summer irrigation season
- Monsoon season July 1st-Sept.15th
- Limited capacity to serve both
- Doubled edge sword: evacuate or contribute to flood event
- O&M nightmare/ Inadequate funding
- Limited Authority and Jurisdiction



The Fifth Bullet





The Fifth Bullet





The Fifth Bullet



Canal and Drainage Systems





The Sixth Bullet



- Unrestricted Growth
- Inadequate mapping
- Inadequate flood zones
- False sense of security
- Developmental consequences
- Lack of Authority and Jurisdiction
- INADEQUATE FUNDING



The Sixth Bullet

Unrestricted Growth



The Sixth Bullet Unrestricted Growth



Hatch Flooding Event

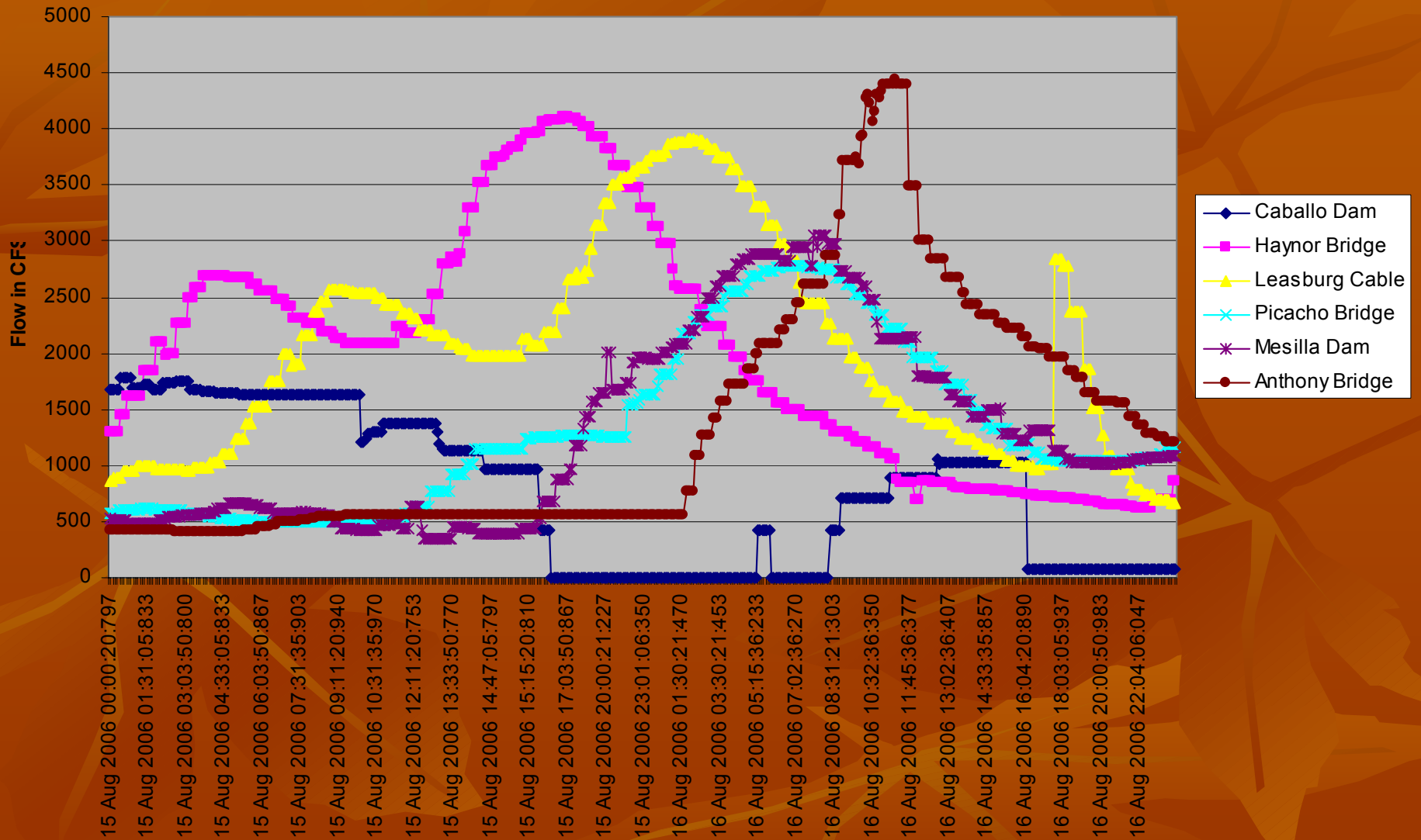
- August 15, 2006
 - Devastation from a wild arroyo

Hatch Flood Events

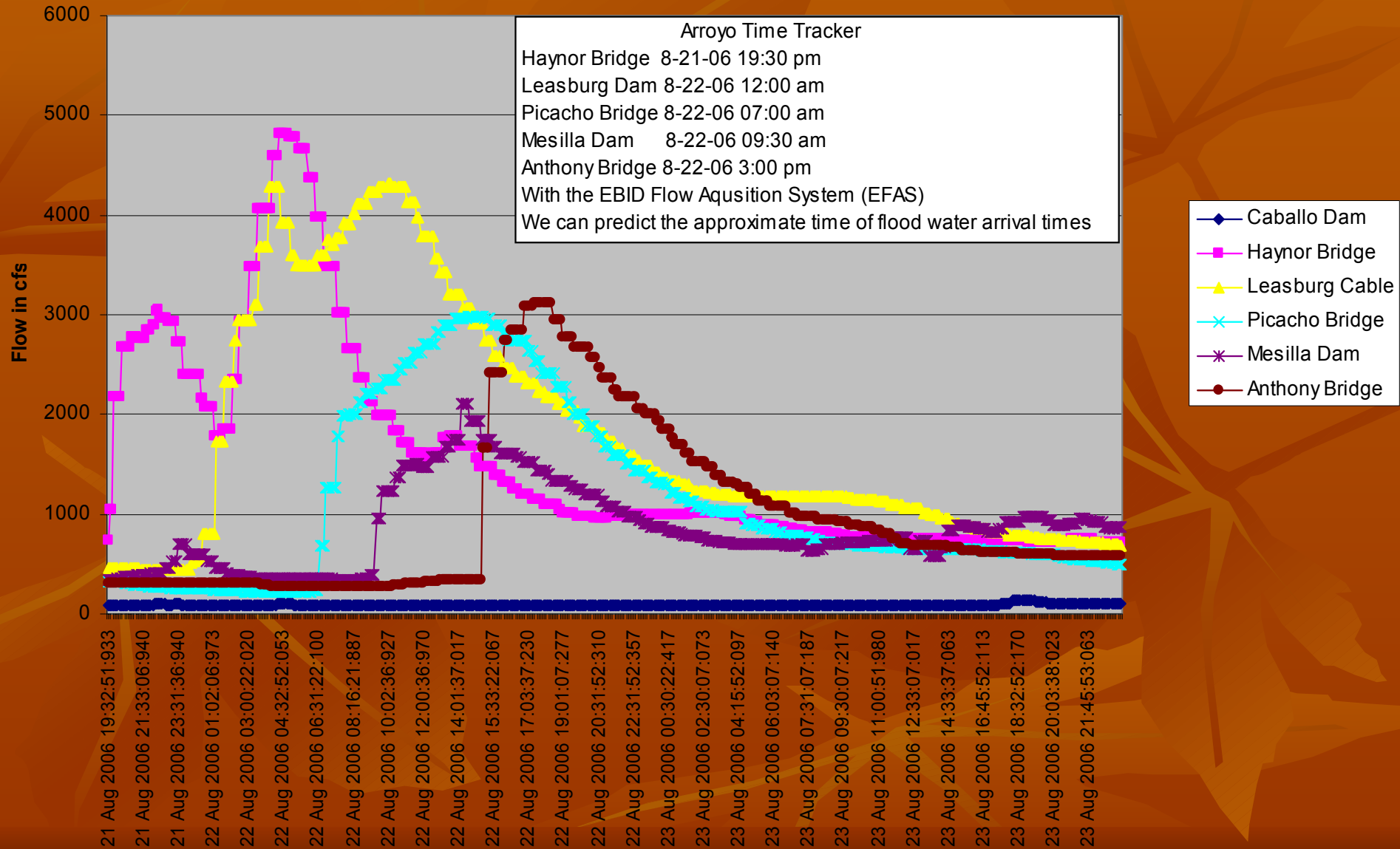
July 7, 2006



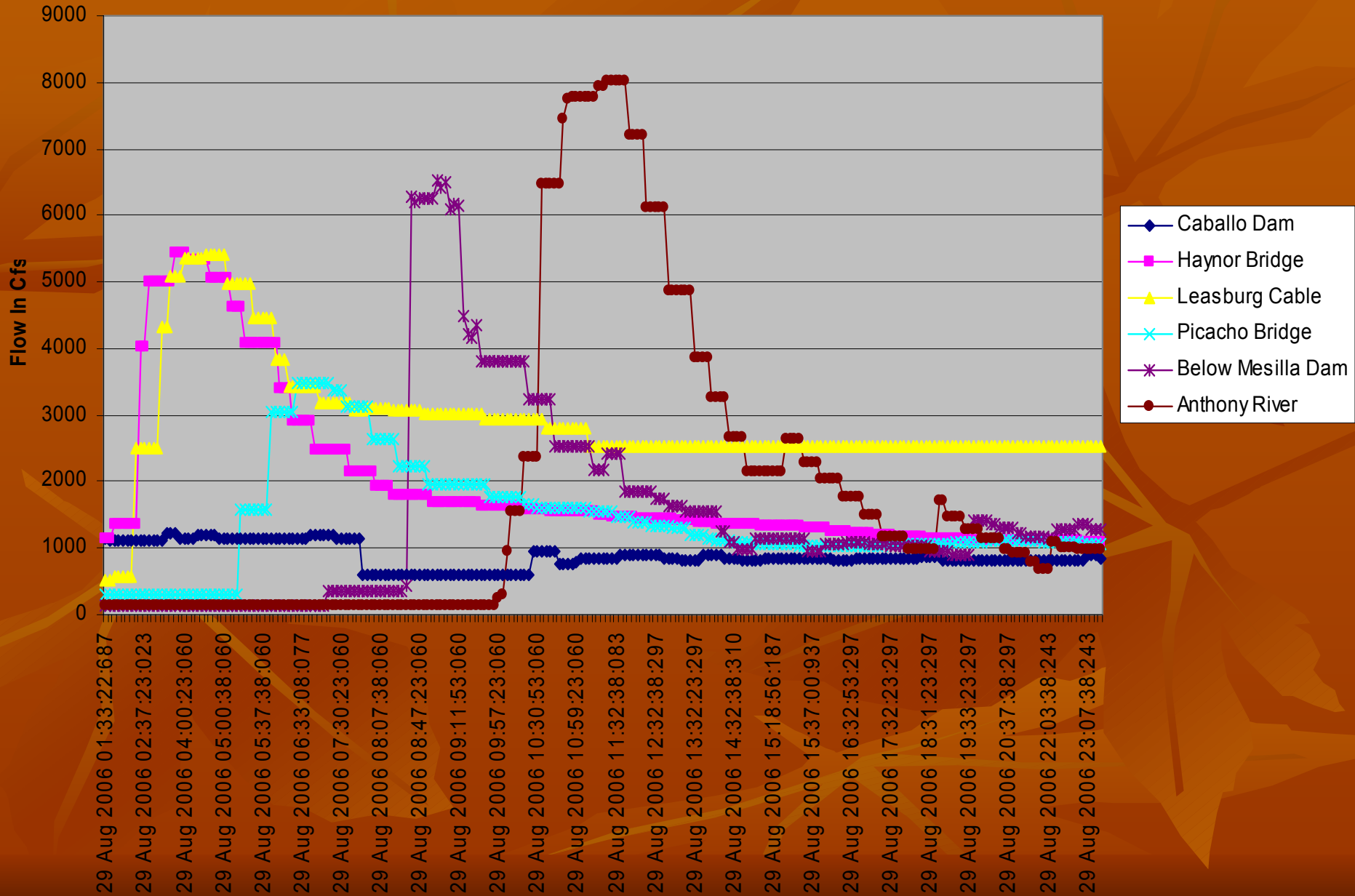
August 14th Flood Event



August 22nd Flood Event



August 29th Flood Event



Hatch Flooding Events



Hatch Flooding Events

When some of the bullets have fired!



Hatch Flooding Events



Hatch Flood Events



Hatch Flood Events



Hatch Flood Events



Dodging the Bullet!

- Establish a Regional Flood Safety Center
 - In conjunction with NMSU, develop a comprehensive solution to the web of hydrologic, hydraulic, geotechnical, cultural, financial and jurisdictional problems. Integration of local governments into a regional authority for opportunities to improve infrastructure by repair and replacement and/or design of new flood control facilities.
- Reduce the tension between greater flood risk and reduced storage capabilities below Caballo Reservoir.
 - Develop a better understanding of how flood risks will change, of the atmospheric conditions that control precipitation form, and of possible trends in these conditions to protect and accommodate future water supplies. Develop aquifer storage and drainage facilities to accommodate flood flows.

Dodging the Bullet!

- Development of a critical local weather monitoring system
 - Promote improved atmospheric modeling, flood forecasting and application of real-time weather data. Develop isolated weather stations and an early-warning precipitation systems in the local water sheds to predict arroyo flows.
- Create a one stop shop for flood control infrastructure needs and administration.
 - Utilize public and private sector funding sources to better leverage state dollars to get more matching federal funds for flood control projects.

Dodging the Bullet!

- Establish new management objectives for the Rio Grande Canalization Project.
 - Develop new studies on flood control, irrigation deliveries, wildlife habitat, ecosystems, and river efficiencies to establish integrated benefits and trade-offs from improved management of any one of these objectives.
- Provide advice on technical decisions influencing the future river management to the US IBWC.
 - Promote diverse interests in healthy river management that adequately addresses the historic nature, institutional framework, and technical function and processes for local water managers, environmental and recreational interests. Establish a safe harbor agreement for the protection of a future water supply for the region

The End

Let's Bullet Proof the Risk!

